

Informalities

The Examiner objected to the disclosure stating that in Tables 1-6 the recitation of the term "Level" is indefinite. Applicants submit that the term "Level" is adequately clear as used in the specification and in light of common knowledge to those of ordinary skill in the art. The entire specification discusses "assays". Those of ordinary skill in the art know that assays require calibration curves. Calibration curves are created using different levels of known amounts of the substance being assayed. The results of the known levels are plotted on a graph to generate a calibration curve.

The Examiner pointed to various matters in paragraph [0035]:

- a. "the stability study" lacks antecedent basis. Applicants changed "the" to "a".
- b. the words represented by the abbreviation "TSH" lack antecedent basis
Applicants included in the specification the known definition of TSH, that is "thyroid stimulating hormone"
- c. the phrase "the original quantitation" lacks antecedent basis. Applicants respectfully traverse but have amended the specification to include description as to what Table 1 clearly shows

The Examiner pointed to various matters in paragraph [0036]:

- a "modified beads do not" appears grammatically awkward or misplaced
Applicants amended the specification to repeat that the modification vs. SA shows a distinction in "access to the surface".

In addition, [0036] used the word "comprised" when the correct word is "comprise"

The Examiner pointed to various matters in paragraph [0037]:

- a. "its" is indefinite Applicants have replaced "its" with "binding species".
- b. it is unclear whether the "dissociated molecule" is "dissociated species".
Applicants submit that it is clear that the two are alternative phrases however Applicants have deleted reference to "dissociated molecule".

The Examiner pointed to various matters in paragraph [0038]:

- a. the phrases "the binding pair members" and "the solid-phase" lack antecedent bases. Applicants point out that the exact terms are used in paragraph [0020].

The Examiner pointed to various matters in paragraph [0040]:

- a. The words represented by the abbreviation "FT3" lack antecedent basis. Applicants inserted the name "Free T3").

The Examiner pointed to various matters in paragraph [0041]:

- a. the adjective "this" is indefinite. Applicants have repeated the matter from the previous sentence (referring to "this").

The Examiner objected to the general contents of paragraphs [0035], [0040], [0041], [0043] and tables 1-6 for reference to and reliance upon data obtained from commercially manufactured assays stating that the specification does not clearly disclose the contents of each assay or disclose experimental protocols for using the assays.

In response to previous arguments the Examiner has stated that he is unable to locate a definition for the term "calibrator". Applicants submit that it is not necessary to define terms when used in their standard meaning. Moreover, the type of units that the calibrator is measured in is not critical to the invention. These are merely examples of how the invention works and a comparison to an assay without the scavenger beads. To demonstrate to the Examiner how common terms such as "TSH", "level" and "FT3" are, Applicants performed a search using "google" engine inputting TSH and Free T3. The results are enclosed. In the synopsis, all the terms are used. Applicants note that in the search for TSH, the government's NIH site used both the term "level" and TSH. Applicants are not required to define and explain what is known.

Rejections § 112, Second Paragraph

The Examiner rejected claims 1 and 14 stating that the terms “an assay” and “an assay of an analyte”, “attached thereto” and “dissociated first binding species” are indefinite. In addition, and also with respect to claim 12, the Examiner states that the “cooperative relationships of elements” is omitted. Specifically, the structural connection between “fluid medium” and “second substrate” is not clear and “fluid medium” and “binding regions” is not clear.

With reference to “an assay” and “an assay of an analyte” these terms are well-known and are reasonably definite. With respect to “attached thereto” the Examiner states that “thereto” is not clear. The examiner states: “Whether “first binding species” is attached to “first substrate” AND/OR/NOT “fluid medium” AND/OR/NOT “reagent” is not clear. The claim recites: “a first substrate having a first binding species attached thereto”. Clearly, “attached thereto” references “a first substrate” However, Applicants have added a colon before “a fluid containing” and a comma after “thereto” to clarify the relationship between the fluid and the first and second substrates.

The Examiner rejected the phrase “the signal strength” as lacking antecedent basis and “detrimentally affecting” as lacking antecedent causal basis. Assays, as that term is used in the art and in the specification, use a label reagent to provide a signal. See, for instance, [0002]. Thus signal and signal strength are inherent in the term assay. Inherent components of elements recited have antecedent basis in the recitation of the components themselves. For example, the limitation “the outer surface of said sphere” would not require an antecedent recitation that the sphere has an outer surface. See, for instance, M.P.E.P. 2173.05(e). In addition, this same section advises that “a claim term which has no antecedent basis in the disclosure is not necessarily indefinite.” There is no requirement that the words in the claim must match those used in the specification. The claim must have meaning to one of ordinary skill in the art

The Examiner rejected claim 7 stating that “including” is indefinite in view of “non-porous material” and “outer surface porous” and whether a non-porous material can “include” a porous inner or outer surface is not clear. Applicants thank the Examiner for pointing this out. Applicants had intended to amend permeable to porous, not “non-porous”. See the response to OA dated August 2, 2005 where the amendment was first

introduced. In addition, the Examiner stated that the structural cooperative relationships of elements is not clear. Applicants have amended the claim to more distinctly point out the cooperative relationship.

In addition to the rejections discussed above, the Examiner rejected claims 12 and 14 stating that the term "regions adapted to selectively bind" is indefinite and the mechanism of binding is not clear. Applicants submit that these terms are reasonably clear to one of skill in the art when read in light of the specification as to how the surface or region binds a binding species. The scavenger substrate may be coupled with a material that binds the dissociated binding species [0034], the substrate may have indentations, such as crevices or other unpatterned designs, the substrate may have textures, grooves or brush like appendages [0036] or other characteristic that allows the substrate to distinguish between the dissociated binding species and solid-phase bound species such as weight or diffusion rate.

The Examiner rejected claim 14 stating the duplicate recitation of the terms "regions" is indefinite. The Examiner provided suggestion to obviate the rejection and Applicants have amended the claim.

§102 (b) Rejections

The Examiner rejected claims 1-8 and 12-16 as being anticipated by Ullman et al. (US 6,406,913). The Examiner states that Ullman et al. teach a reagent comprising a fluid medium (col. 36, lines 1-32) containing a first substrate (col. 19, lines 47-65) having a first binding species (col. 14, lines 55-67) attached thereto (col. 19, lines 66-67) and a second substrate having binding regions having binding partners capable of selectively binding said first binding species (col. 35, lines 36-38 and col. 37, lines 28-35). In addition, the Examiner states that the language "without detrimentally affecting the signal strength of the assay" is functional and gives it no weight.

Applicants respectfully traverse. Applicants claim a second substrate having a binding regions that have binding partners capable of selectively binding dissociated first binding species without detrimentally affecting the signal strength of the assay. The Examiner states that "without detrimentally affecting the signal strength of the assay" is

functional and gives it no weight and that Ullman et al. describe binding species that are capable of dissociating from a substrate (col. 20, line 8, "non-covalent interactions").

Applicants traverse. Nothing in Ullman et al. states that the binding species is capable of dissociating. The citation of column 20, line 8 merely discusses that the binding species may be covalently or non-covalently bound to the solid phase. It does not state, teach or suggest that the binding species is capable of dissociating. Further, nothing in Ullman et al teaches a second substrate that has binding partners that selectively binds dissociated first binding species. Moreover, with reference to M.P.E P. 21111.04 and the phrase "without detrimentally affecting the signal strength of the assay", Applicants note that whether clauses of these type are a limitation is fact specific and if it is a condition that is material to patentability, it cannot be ignored. For instance the claim could read "wherein the binding of the dissociated binding partner to the binding partner on the second substrate does not detrimentally affect the signal strength of the assay"

The Examiner stated that Ullman et al. teach a reagent used in a sandwich assay comprising a first binding species (col. 37, lines 58+, TSH) wherein a first portion (col. 38, lines 7-9) is attached to the first substrate and a second portion is dissociated from the first substrate and the second portion binds to a second substrate. Applicants traverse. Applicants have not found in Ullman et al. where it is disclosed that a second portion of the first binding species is dissociated from the first substrate and then binds to a second substrate. Moreover, the TSH antibodies discussed in this section are completely different antibodies (form each other). One binds the beta subunit, the other the alpha subunit. Even if one or the other were dissociated from a substrate it could not bind to the other antibody on a second substrate.

The Examiner rejected claim 14 stating that Ullman et al. teach a reagent wherein specific binding pair members are located on the surface (col. 14, lines 55-56) of different supports and are used in a competitive assay format wherein one binding member is complementary to another binding member (col. 37, lines 28-35).

Applicants respectfully traverse. In the amended claim Applicants claim a second substrate having a binding regions that have binding partners capable of selectively binding dissociated first binding species without detrimentally affecting the signal strength of the assay. Ullman et al. is completely opposite. In the competitive format described by Ullman et al. the chemiluminescent solid phase has an associated

binding material that reacts with a complementary binding material on the photosensitizer particle. Moreover, the binding of the pair in Ullman et al. relates to assay signal strength. Col. 35, lines 40-45). The language in the claims describes the second substrate and serves to distinguish the claims structurally from Ullman et al as discussed above

In addition, although not specifically mentioned in this Office Action, Applicants want to ensure that the Examiner fully understood the response to the Final Rejection mailed in October of 2005 and previous responses. The Examiner had rejected claim 7 stating that Ullman taught cavities on the substrate. Applicants pointed out the cavities described by Ullman were cavities on the binding material particularly when discussing antibodies. Ullman was describing the "lock and key" type recognition between binding partners. Applicants had been describing physical cavities on the substrate.

Thus, Applicants submit that the claims as amended are not anticipated by Ullman et al and respectfully request that the rejection be withdrawn.

Applicants submit that the amendments and remarks overcome the Examiner's rejections. The Examiner is encouraged to contact the undersigned if the Examiner has any matter that she would like to address.

Respectfully submitted,



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